Discover Templates
By the

AppHaus

The creative design services team at SAP
Discover Templates

Help you understand your end users' needs and wants to identify opportunities for the innovation use case.
Keystone Activities

User research, synthesize, formulate problem statement and begin understanding the architecture constraints and needs of the solution.

Preparation

People: Include end users, key stakeholders during the research.
Place: Make sure research takes place in the environment of the users.
Dedicate a creative space and walls for synthesis.

How-To

Conduct user research to get insights on end users' pain points and opportunities for improvement. Begin IT discussions around the enterprise architecture.
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A workbook and interview script to assist with onsite observation & interviews with end-users for the project.
Discover The Problem Space 360° Research

Conduct field research (primary)
- Talk to End-Users
- Talk to Stakeholders and Experts

Conduct other research (secondary)
- Look at thought leaders / analysts
- Consider adjacent, analogous and other research
Conducting **Interviews**

- Pair up for interviews: *interviewer and note taker*
- Listen
- Be curious and ask why
- Be aware of body language *(your own and interviewee)*
- Take photos
- Collect artifacts
- Write down your impressions
How you ask **matters**

**Ask open-ended questions**
- ✗ Closed ended: results in a single word answer

**Do not ask leading questions**
- ✗ Do you like getting coffee?
- ✔ How is the getting coffee experience?
Pre-Visit Workbook

Workbook to send upfront the onsite observation & interview to the end-users for collecting a first feeling:

• Introduction
• Your Routine
• Best Day/Worst Day
• Tips & Tricks
Pre-Visit Workbook

Hello!

Thank you for participating in our research. The purpose of our meeting is to gain insights for:

Your scenario / use case

Please fill out this workbook. Do not worry about making it “pretty!” It will be of great help for our meeting.

I look forward to chatting with you!

Introduction (2 min)

Please tell us a bit about you below.

My name is name

And I work in business unit, department

My current position is job title

and I have been doing it for ______ years.

My main responsibilities include

Main responsibilities

Checklist (20 min max)

- Introduction (2 min)
- Your Routine (5 min)
- Best Day/Worst Day (6 min)
- Tips & Tricks (5 min)

Bonus points if you help capture the following through photos:

- Work environment
- Helpful tools, things, people
- Hindering actions, protocols

Draw yourself and your team here!
Your Routine (5 min)

Please **give us an idea of how you spend your day.**

What kinds of **activities** do you perform for your job?

How much **time** is spent each day doing each activity?

Please also include the following

- software, devices, tools/materials used
- people who are involved and/or talked to

**Rough sketches and keywords** are great, since you will have the chance to verbally elaborate when we meet.

<table>
<thead>
<tr>
<th>A few things I do...</th>
<th>Who I talk to...</th>
<th>How long it takes...</th>
<th>Things I use...</th>
</tr>
</thead>
</table>

*Your routine description*

This is just an example ... No timeline is needed!
Your Best Days (3 min)
Take a moment to recall **days that feel great** on the job

What happened?

What things (tools, protocols, or people) supported you?

Your Worst Days (3 min)
Take a moment to recall **not-so-great days** on the job

What happened?

What things (tools, protocols, or people) supported you?
Tips & Tricks (5 min)

What are 5 things that you would tell someone new to your group to help them succeed? *(This does not have to be related to applications or software)*

1) 

2) 

3) 

4) 

5) 

Thank you!

Please put here any notes (highlights, concerns) that you would like to discuss during our upcoming meeting.
Interview Guide Overview

Interview script guide to support the interviewer & the note taker during the end-user observation & interview:

• Introduction

• Personal Introduction

• Interview & Observation
  • Key tasks
  • Processes
  • Pain Points and room for improvement
  • User Journey for the processes

• Backup Questions for Interview

• Notes
Interview Guide

Introduction (5-10 min)

• We are Designers of [Your company]

• Project goal: 

• We would like to capture your insights, understand the pain points and current situation.

“Don’t worry. This is not a test. We are not here to critique your way of working, but rather to fully understand your work and how you do it. We want to gain a general understanding of your task flows and all of the tools and resources that you use in relation to this scenario in your daily work. Please be open and honest! It is very important for us to get the real picture of your everyday tasks.”

• We are interested in any problems or unmet needs you have in relation with this scenario.

• This interview will take about max 60-90 minutes. You can have a break or stop the interview at any time.

• Is it alright with you for us to take pictures / recording of your work environment?

• Could we have screen shots printed out?

• The information that we gather in our session will be fully anonymous and confidential.
Personal Introduction (10 min)

Interviewee Name: __________________________________________________________

Department: ________________________________________________________________

Date & Interviewer: __________________________________________________________

What is your official job title? _____________________________________________

How long have you worked in this role? _____________________________________

Which software do you use? _______________________________________________

Which additional tools do you use?

☐ Telephone  ☐ Internal Guidelines  ☐ Copy machine
☐ Internal Guidelines  ☐ Books, Lists, Manuals  ☐ Printer
☐ Copy machine  ☐ Online (Intranet)  ☐ Print
☐ Mail  ☐ Files, Archives etc.

Further description of the workplace:
Equipment, hardware (e.g. number and size of screens), & tools are used. Take a picture/draw a sketch the user’s work environment. Look out for sticky notes, folders, filing baskets, and describe how they are used.

Name
Department
Date & Interviewer
Answer
Answer
Answer
Interview & Observation (30-45 min)

Note: Screenshots!

Key tasks (= use case)

Imagine that we were new colleagues, who are about to take on the same tasks as you in the future. Show and tell us, how you work so that we don’t struggle with the same difficulties and how your workaround is.

Which are your main (E2E) processes in your daily / regular business?

• 1 answer

• 2 answer

• 3 answer

• 4 answer

• 5 answer

Who are your customer / stakeholders (internally / externally)?

Are you working in a team?
Please show us the ________________ process

• What is the trigger of starting this process / using this report? (=why?)

• Which are your most important tasks or information?

• Who is your customer (internally / externally)?

• Are there any recurring tasks? If yes, which ones?

• How often and when do these tasks occur (e.g. weekly, monthly, periodicity)?
Pain Points and room for improvement

• Do you recognize any bottlenecks (e.g. communication)?

• Do you have further proposals for improvements?

• What do you like in current solution

• Is there anything else to tell us?

• Individual discussion based on pre-survey
User Journey for the _________ process (30 min)
Please show us the ________________ process

• What is the trigger of starting this process / using this report? (=why?)

• Which are your most important tasks or information?

• Who is your customer (internally / externally)?

• Are there any recurring tasks? If yes, which ones?

• How often and when do these tasks occur (e.g. weekly, monthly, periodicity)?
Pain Points and room for improvement

• Do you recognize any bottlenecks (e.g. communication)?

• Do you have further proposals for improvements?

• What do you like in current solution

• Is there anything else to tell us?

• Individual discussion based on pre-survey
User Journey for the ___________ process (30 min)
Backup Questions for Interview

Per key task:

**Activity**
- How do you know when to start the task?
- (e.g. by work-lists, messages, email, telephone etc.)?
- Which concrete steps do you have to make in order to perform this task?
- How do you know you are done?
- Errors handling?

**Information Flow & Exchange**
- Which concrete information do you need in order to execute each of these steps?
- Wherefrom (from whom) and in which form do you receive this information, e.g. which kind of reports, documents, access to specific databases or artifacts?
- Is the information you get sufficient? If no: which further information do you need to fulfill your task?

**Decision Making**
- Which decisions have to be taken in context of these tasks?
- How do you take the decision?
- Which decisions can be taken by yourself?
- Which decision needs to be taken by someone else?

**Communication with other people / parties etc.**
- Which additional persons (roles - e.g. tax payer, court) do you need to fulfill these tasks? What are these persons contributing then?
- How do you communicate with each of these process members (phone, eMail, letter, fax, face to face)?
- How (and where) do you document this?
- To whom do you need to transfer this information (e.g. status)?

**General**
- How do you ensure you fulfill your tasks in time?
- How do you document your work (e.g. notes)?
- What happens when you are not in the office?
- Career Path?
Unpack thoughts and experiences into tangible and visual pieces of information. Synthesize data into interesting findings and create insights which will be useful for creating solutions.
**Synthesis Grid**
Unpack thoughts and experiences into tangible and visual pieces of information

- **Share the stories and characteristics of users**
- **Capture data points of the stories**
- **Cluster & Highlight the key insights**
Discover **Synthesis**

**Mass of unstructured information**
Result of research interviews

**Make sense of the data**
Synthesis

**Define a clear problem statement as focus for design**
Goal
How to debrief

To begin the synthesis grid, cover the walls with post it notes consisting of data points. Below are topics to consider:

- Role introduction
- Daily routine
- Best day/worst day
- Tips & Tricks for new employee
- Work environment
- Helpful tools, things, people
- Hindering actions, protocol
- How long does it take
- Who I talk to
- Extreme experience
- Story about last time
- Errors handling
- Career Path
- ...

We met ...
We observed...
We were surprised ...

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**Synthesis Grid Instructions**

**Duration**
30-180 minutes

**Number of Participants**
3-5 participants

### Why & What
Unpack thoughts and experiences into tangible and visual pieces of information.

Get the team on the same level of knowledge about the research findings.

Synthesize data into interesting findings and create insights which will be useful for creating respective solutions.

Inspire the team to move toward identifying meaningful needs of people and insights.

### How to use it
Outline the research approach (e.g. interviews), methods, and circumstances at the beginning of the session to summarize the effort.

2. Round the table: Share the stories and characteristics of users with your team mates.

Images, movies, anecdotes, and quotes are useful to support your story and engage the audience. Encourage the audience to ask questions.

3. Each team mate capture data points of that stories and stick them to the synthesis grid on the wall.

4. Cluster the data and define headlines for the different topics

5. Highlight the key insights with Golden Nugget frames.

### Tips & Tricks
For the storytelling you can think about:

- Role introduction
- Daily routine
- Best day/worst day
- Tips & Tricks for new employee
- Work environment
- Helpful tools, things, people
- Hindering actions, protocol
- How long does it take
- Who I talk to
- Extreme experience
- Story about last time
- Errors handling
- Career Path ...
Synthesis Grid  Example
## Synthesis Grid Template

<table>
<thead>
<tr>
<th>User Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goals &amp; Needs</td>
</tr>
<tr>
<td>Pain Points</td>
</tr>
<tr>
<td>Most Surprising Facts</td>
</tr>
<tr>
<td>Ideas</td>
</tr>
</tbody>
</table>
Persona

Templates | Instructions | Example | Protocol

Archetype of your users from research interviews to guide future design decisions.
Persona
Archetype created to represent goals and behaviors from user research

What are the typical characteristics that best reflect the users? (name, age, role, educational background)

What goals, tasks does the persona have?

What does she like? About what is she frustrated?
Persona Instructions

Duration
15-30 minutes

Number of Participants
3-5 participants

Why & What
Archetype of your users from research interviews.

Considering Personas helps to guide future design decisions. They give a human face to an otherwise abstract data.

*We work with Personas, so our developers don’t develop for themselves.* - SAP User Researcher

Personas are fictional characters, based on real data from your research interviews and created to represent user types and roles. They include goals, desires, tasks and limitations of the users.

How to use it
1. Include typical characteristics of users: face, name, age, educational background, etc.

   In context of the design challenge:

2. Describe
   • What is their role?
   • What is the goal they are trying to achieve?
   • What are the tasks to achieve the goal?
   • What is the trigger for these tasks?
   • How frequently do they complete those tasks?

3. Describe likes and dislikes.
   • What does the Persona like?
   • What frustrates the Persona?

4. Visualize.
   • Describe or sketch what their environment looks like.

Tips & Tricks
Knowledge about the users for the use case is a prerequisite in order to leverage this tool.
**Persona Example**

**Demographics**
- **My Name**: Michael
- **My Age**: 29

**Work Context**
- **I work with ...**: Channel Operator, Truck Driver
- **My environment looks like...**: Forklift Cabin with touchscreen, Shared Office with desktop

**Activities**
- **My Role**: Forklift Operator
- **My Competencies**:
  - Power User — Casual User
  - Proactive — Reactive
  - Team Worker — Lone Fighter
  - Global Focus — Local Focus
  - Innovative — Conservative
- **My Goal**: To be efficient, Bringing Value to Company
- **My Trigger**: Production Order, E-Mail change request
- **Frequency**:
  - Hourly
  - Weekly
  - Daily
  - Monthly

**My Tasks**
- Supply Production Channels
- Return goods to basement

**Feelings**
- **What motivates me?**: Wants to learn more, Feels he’s part of the company, Team Loyalty
- **What frustrates me?**: Double work of relabelling, Too much information on the screen, Scanner Quality

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### Persona Template

#### Demographics
- **My Name**
- **My Age**
- **My Education**
- **My Background**

#### Work Context
- **I work with**...
- **My environment looks like**...

#### Activities
- **My Role**
- **My Competencies**
  - Power User
  - Proactive
  - Team Worker
  - Global Focus
  - Innovative
  - Casual User
  - Reactive
  - Lone Fighter
  - Local Focus
  - Conservative
- **My Goal**
- **My Trigger**
- **Frequency**
  - Hourly
  - Daily
  - Weekly
  - Monthly

#### Feelings
- **What motivates me?**
- **What frustrates me?**
User Experience Journey Map

Templates | Instructions | Example | Protocol

A User Experience Journey Map helps a team understand current challenges and motivations for the user over time to derive insights about the use case.
User Experience **Journey Map** (As-Is Process)

Structure your knowledge about the use case, in context of the persona and research

- Write down the actions step by step
- Write down the corresponding mindset and touch points
- Mark the pain points and moment of truth
User Experience Journey Map Instructions

Duration
60-120 minutes

Number of Participants
3-5 participants

Why & What
An User Experience Journey Map allows a team to gain a common understanding about the use case through the eyes of the user over time. It helps a team to realize current user challenges and motivations, as well as to derive insights about the use case and to articulate user needs.

It is an exercise used to layout the user experience in a chronological order, step by step, on a whiteboard or on a big poster. Knowledge about the use case and the user is key to conduct this exercise.

We use this activity to capture the As-Is Process during the Discover phase.

How to use it
1. Center lane: Write down the actions step by step. What actions does the user take while trying to achieve their goal and/or fulfill their tasks?

2. Top lane: Write down the corresponding mindset. What is on the user’s mind during this journey? How do they feel at each step of their journey?

3. Bottom lane: Write down the corresponding touch points. What touch points does the user have? What do they engage with while on the journey (tools, devices, conversations, other people, etc.)?

4. Mark the pain points and moments of truth.

Tips & Tricks
Moment of truth

A “moment of truth” describes a situation when something could go wrong and/or in which critical decisions have to be made.

Pain points

Situations that the user finds uncomfortable, frustrating or difficult are called “pain points”.

Tip

If ideas come up during the exercise, put them to an idea parking lot.
As-Is Process

Persona: Michael, Forklift Driver

Activity 1: deliver goods from 24h buffer zone to channel

Mindset
- Avoid unnecessary screens
- Being smart and proactive
- Stupid system that requires me to manually update the view
- Which one is the nearest location
- Avoid driving into people and AGV

Action
- Navigate to the correct transaction
- Open 1 tab per channel/location
- Check the queue relevant for his location
- Select handling Task
- Drive to Destination

Touchpoints
- SAP EWM
- SAP EWM
- SAP EWM
- SAP EWM
- Forklift
User Experience Journey Map

Template
Problem Statement

Templates | Instructions | Example | Protocol

Create a problem statement from insights learned as a "How Might We" question to help focus the problem into a statement of opportunity to generate ideas during the design phase.
Problem Statement How might we...?
Translate the team’s learning about the user and the use case into questions

- Start discussing what you have learned about the user and use case
- What was interesting, inspiring and surprising? Why?
- What are the insights and what are the most important needs?
Problem Statement Instructions

How might we...?

Duration
15-30 minutes

Number of Participants
3-5 participants

Why & What

A problem statement formed as a "How Might We" question helps focus the problem into a statement of opportunity to generate ideas during the design phase.

They serve as a basis for idea generation.

The dialogue and discussion within the team is key.

Creating "How Might We" questions is an exercise to frame questions that address the user’s needs and motivations.

How to use it

1. Discuss within the team
   - What have you learned about the user and their current journey?
   - What was most interesting, inspiring and surprising? And why so?
   - Articulate the insights, the most important user needs, limitations and conditions of success.

2. Start phrasing 3-5 "How Might We" questions by formulating the results from part 1 into questions. These questions are the basis for a first round of idea generation.

Tips & Tricks

Prior to this exercise, the team must have developed a common understanding about the user as well as the user’s needs, motivations, limitations and/or criteria of success.
What can we do for our Persona?

How might we help

(Persona)
Who are you trying to help?

(Conditions)
What did you learn from the UX Journey Map?
(conditions based on moment of truth and/or pain points)

(Achievements)
What does this Persona want to achieve?
(The Personas goals and tasks)

Michael, Forklift Driver

Who

who

works dynamically (4 tabs opened)

to

optimize his moving routes (driving back & forth)
and prioritize the production needs

Problem Statement Example
How might we...?
Problem Statement Template
How might we…?

What can we do for our Persona?

How might we help __________________________

(Persona)
Who are you trying to help?

who __________________________

(Conditions)
What did you learn from the UX Journey Map?
(conditions based on moment of truth and/or pain points)

to __________________________

(Achievements)
What does this Persona want to achieve?
(The Personas goals and tasks)
Define the constraints that must be dealt with, including enterprise wide constraints and project specific constraints. Architecture principles define guidelines to be considered when developing an architecture. Evaluate and agree an outcome for architecture decision points.
## Architecture Principles Catalog

| Name | Should both represent the essence of the rule as well as be easy to remember. **Specific technology platforms should not be mentioned in the name or statement of a principle.** Avoid ambiguous words in the Name and in the Statement such as: "support", "open", "consider", and for lack of good measure the word "avoid", itself, be careful with "manage(ment)", and look for unnecessary adjectives and adverbs (fluff). |
| Statement | Should succinctly and unambiguously communicate the fundamental rule. For the most part, the principles statements for managing information are similar from one organization to the next. It is vital that the principles statement is unambiguous. |
| Rationale | Should highlight the business benefits of adhering to the principle, using business terminology. Point to the similarity of information and technology principles to the principles governing business operations. Also describe the relationship to other principles, and the intentions regarding a balanced interpretation. Describe situations where one principle would be given precedence or carry more weight than another for making a decision. |
| Implications | Should highlight the requirements, both for the business and IT, for carrying out the principle - in terms of resources, costs, and activities/tasks. It will often be apparent that current systems, standards, or practices would be incongruent with the principle upon adoption. The impact to the business and consequences of adopting a principle should be clearly stated. The reader should readily discern the answer to: "How does this affect me?". It is important not to oversimplify, trivialize, or judge the merit of the impact. Some of the implications will be identified as potential impacts only, and may be speculative rather than fully analyzed. |

Source: [TOGAF Standard, Version 9.2](https://www.opengroup.org/togaf/standard/9.2/)
## Architecture Principles Catalog

### Instructions

<table>
<thead>
<tr>
<th>Why &amp; What</th>
<th>How to use it</th>
<th>Tips &amp; Tricks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Duration</strong></td>
<td><strong>30-90 minutes</strong></td>
<td><strong>Principles are general rules and guidelines, intended to be enduring and seldom amended, that inform and support the way in which an organization sets about fulfilling its mission.</strong></td>
</tr>
<tr>
<td><strong>Number of Participants</strong></td>
<td><strong>2-5 participants</strong></td>
<td><strong>In their turn, principles may be just one element in a structured set of ideas that collectively define and guide the organization, from values through to actions and results.</strong></td>
</tr>
</tbody>
</table>

**Define the constraints that must be dealt with, including enterprise wide constraints and project specific constraints (time, schedule, resources, vendors, standards, etc.).**

**Architecture principles define guidelines to be considered when developing an architecture. Describes what a “good” solution or architecture should look like. Used to evaluate and agree an outcome for architecture decision points.**

**1. Align on constraints, architecture principles, and architecture solution.**

**2. Record and update the content as the project progresses.**
# Architecture Principles Catalog

## Business Principles

<table>
<thead>
<tr>
<th>Name</th>
<th>Common use business applications</th>
<th>BP_010</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Statement</strong></td>
<td>Common use of business applications across the enterprise is preferred (e.g. Field Service Management application is made available to all locations)</td>
<td></td>
</tr>
<tr>
<td><strong>Rationale</strong></td>
<td>Duplication of applications, data and other IT resources is expensive in operation and maintenance. It causes duplicate and/or conflicting data.</td>
<td></td>
</tr>
</tbody>
</table>
| **Implications** | Organizations are not allowed to develop and operate their own applications with similar capabilities will need to switch to the corporate version (which impacts expenditures, maintenance and user experience), but selecting such enterprise wide applications will take longer and will involve larger Stakeholder groups. This applications need to provide support for the 8 major languages (NLV) and must apply to country-specific legal requirements (see taxation and data privacy).  
• Standardization of (business) processes which are supported by these applications will be made easier.  
• Corporate scalability, availability and security requirements can be aligned.  
• Data consistency can be ensured. | |

<table>
<thead>
<tr>
<th>Name</th>
<th>Preferred IT vendor strategy</th>
<th>BP_020</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Statement</strong></td>
<td>Consider applications from our strategic IT partners first: Microsoft and SAP</td>
<td></td>
</tr>
<tr>
<td><strong>Rationale</strong></td>
<td>We have long relationships to our IT partners (vendors and services) which are based on corporate contracts to ensure best license prices, interoperability and intergration, maintenance and premium support (e.g. 24x7). This principle also reflects objectives in the Interoperability principle TP_010.</td>
<td></td>
</tr>
</tbody>
</table>
| **Implications** | Organizations may not be able to select the best fit-for-purpose application from an ISV when our partners offer similar capabilities. Although, the individual cost may be competitive, the overall corporate expenditures are easier to control through our partner contracts.  
• Maintenance and support contracts are already in place through corporate contracts.  
• International availability can be ensures (and Principle BP_010 is likely to be met). | |

Source: TOGAF Standard, Version 9.2
## Application Principles

<table>
<thead>
<tr>
<th>Name</th>
<th>Cloud-first approach for applications</th>
<th>AP_020</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Statement</strong></td>
<td>Applications as cloud offerings (Software-as-a-Service) should be preferred.</td>
<td></td>
</tr>
<tr>
<td><strong>Rationale</strong></td>
<td>SaaS offerings that are available in many local data centers allow for efficient operation and maintenance and ensure global availability.</td>
<td></td>
</tr>
</tbody>
</table>
| **Implications** | • Availability of the SaaS offering needs to be ensured for all enterprise locations. Also consider **BP_010** and **BP_020**.  
• Multi-language support (8 major languages) is required.  
• The vendor of the SaaS application must adhere to legal requirements such as data privacy laws and worldwide data center standards.  
• Local offices and (mobile) workstations must be enabled for accessing the cloud application. This has an essential impact on the network connectivity and network availability between the workstation and the data center of the SaaS provider. Local offices may consider using private leased line type of connections to the SaaS data center.  
• Access to public cloud applications requires careful security assessments (e.g. for authentication, authorization and access control). |        |

Source: [TOGAF Standard, Version 9.2](https://www.opengroup.org/togaf-standard/9.2/)

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## Data Principles

<table>
<thead>
<tr>
<th>Name</th>
<th>Data Security</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statement</td>
<td>Data is protected from unauthorized use and disclosure. In addition to the traditional aspects of national security classification, this includes, but is not limited to, protection of pre-decisional, sensitive, source selection-sensitive, and proprietary information.</td>
</tr>
<tr>
<td>Rationale</td>
<td>Open sharing of information and the release of information via relevant legislation must be balanced against the need to restrict the availability of classified, proprietary, and sensitive information. Existing laws and regulations require the safeguarding of national security and the privacy of data, while permitting free and open access. Pre-decisional (work-in-progress, not yet authorized for release) information must be protected to avoid unwarranted speculation, misinterpretation, and inappropriate use.</td>
</tr>
</tbody>
</table>
| Implications| • Aggregation of data, both classified and not, will create a large target requiring review and de-classification procedures to maintain appropriate control. Data owners and/or functional users must determine whether the aggregation results in an increased classification level. Appropriate policy and procedures will be needed to handle this review and de-classification. Access to information based on a need-to-know policy will force regular reviews of the body of information.  
• The current practice of having separate systems to contain different classifications needs to be rethought. Is there a software solution to separating classified and unclassified data? The current hardware solution is unwieldy, inefficient, and costly. It is more expensive to manage unclassified data on a classified system. Currently, the only way to combine the two is to place the unclassified data on the classified system, where it must remain.  
• In order to adequately provide access to open information while maintaining secure information, security needs must be identified and developed at the data level, not the application level.  
• Data security safeguards can be put in place to restrict access to "view only" or "never see". Sensitivity labeling for access to pre-decisional, decisional, classified, sensitive, or proprietary information must be determined.  
• Security must be designed into data elements from the beginning; it cannot be added later. Systems, data, and technologies must be protected from unauthorized access and manipulation. Headquarters information must be safeguarded against inadvertent or unauthorized alteration, sabotage, disaster, or disclosure.  
• New policies are needed on managing duration of protection for pre-decisional information and other works-in-progress, in consideration of content freshness. |
## Technology Principles

<table>
<thead>
<tr>
<th>Name</th>
<th>Interoperability</th>
<th>TP_010</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Statement</strong></td>
<td>Data Software and hardware should conform to defined standards that promote interoperability for data, applications, and technology.</td>
<td></td>
</tr>
<tr>
<td><strong>Rationale</strong></td>
<td>Standards help ensure consistency, thus improving the ability to manage systems and improve user satisfaction, and protect existing IT investments, thus maximizing return on investment and reducing costs. Standards for interoperability additionally help ensure support from multiple vendors for their products, and facilitate supply chain integration. Also consider the preferred vendor principle to achieve this (see BP_020).</td>
<td></td>
</tr>
</tbody>
</table>
| **Implications**  | • Interoperability standards and industry standards will be followed unless there is a compelling business reason to implement a non-standard solution.  
                    • A process for setting standards, reviewing and revising them periodically, and granting exceptions must be established.  
                    • The existing IT platforms must be identified and documented. |        |

<table>
<thead>
<tr>
<th>Name</th>
<th>Single Sign On</th>
<th>TP_020</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Statement</strong></td>
<td>User access to IT resources are based on SSO corporate authentication mechanisms.</td>
<td></td>
</tr>
<tr>
<td><strong>Rationale</strong></td>
<td>Corporate single user management systems ensure data access security due to single point of management (for authentication, authorization and access control). User Single Sign On capabilities allow for better user experience (convenience) by reducing security problems due to fewer User IDs and passwords. Refers to Data Security principle DP_010.</td>
<td></td>
</tr>
</tbody>
</table>
| **Implications**  | • A centrally managed user directory service is required. This service must also be able to provide other applications and services with further access information (e.g. authorization and access control information). And, cloud-based systems must also be able to access this service.  
                    • Synchronization between cloud user directory service (or federation) is necessary to allow seamless SSO user experience.  
                    • This central user and access management repository must be especially secured. |        |

Source: TOGAF Standard, Version 9.2